REMARKS

In the Office Action,[1] the Examiner rejected claims 1-5 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,940,850 to Harish et al. ("Harish") in view of Sullivan et al., Using Write Protected Data Structures To Improve Software Fault Tolerance in Highly Available Database Management Systems ("Sullivan") and Goodheart et al., The Magic Garden Explained (Goodheart); rejected claims 6-13 under 35 U.S.C. § 103(a) as being unpatentable over Harish, Sullivan, and Goodheart and further in view of Mckusick et al., A Page Memory Based File System, ("Mckusick"); and rejected claims 14-21 under 35 U.S.C. § 103(a) as being unpatentable over Harish, Sullivan, Goodheart, and Mckusick and further in view of U.S. Patent No. 5,937,199 to Temple.

By this Amendment, Applicants amend claims 1, 7, 9, 10, 14, 17, and 18 to correct minor errors and amend claims 6, 11, and 13 to more clearly define features of the present invention.

The Examiner rejected claims 1-5 under 35 U.S.C. § 103(a) as being unpatentable over Harish in view of Sullivan and Goodheart. Applicants traverse this rejection.

Claim 1 recites a combination of elements, including, for example, "at least one random access memory (RAM), the RAM having a storage location containing filesystem data with associated page table entries, each page table entry having a read/write flag for the filesystem data, the filesystem data being initially mapped for

[1] The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants declines to automatically subscribe to any statement or characterization in the Office Action.

read-only access." Claim 1 also includes "a processor configured to remap the filesystem data for write access by modifying the read/write flag of the page table entries to perform a write operation on the filesystem data during write access, and to remap the filesystem data back for read-only access by modifying the read/write flag of the page table entries."

Harish discloses a system and method for loading "read-only memory [ROM] data into random access memory [RAM] only when the data is modified." (2:19-21). Specifically, "dynamic data" stored in ROM is loaded into RAM based on a "write-access fault." (2:11-13). For dynamic data stored in ROM, Harish, at best, discloses setting a page table entry 203 to "read-only," allowing the generation of the write access fault. (4:15-19). Because Harish merely discloses setting a page table entry 203 to "read-only," Harish fails to disclose or suggest a combination including at least the following: "a processor configured to remap the filesystem data for write access by modifying the read/write flag of the page table entries, to perform a write operation on the filesystem data during write access, and to remap the filesystem data back for read-only access by modifying the read/write flag of the page table entries." Indeed, the Examiner appears to acknowledge that Harish fails to teach this feature. (Office Action, p. 3). Therefore, Harish fails to disclose or suggest a combination including at least "a processor," as recited in claim 1.

From a completely different field of technology, the Examiner cites Sullivan. Sullivan describes using write protected data structures to improve software fault tolerance in a highly available database management system. In his rejection, the Examiner relies on Sullivan at page 172 (left column) which states:

> The DBMS must recognize that it is about to update a protected record, unprotect the page containing the record, and reprotect the record after it is updated.

However, nowhere does the above passage describe or suggest any remapping of the read/write flag of the page table entries of a RAM device. Therefore, neither Harish nor Sullivan discloses or suggests a combination of elements including, for example, "a processor configured to remap the filesystem data for write access by modifying the read/write flag of the page table entries; to perform a write operation on the filesystem data during write access, and to remap the filesystem data back for read-only access by modifying the read/write flag of the page table entries." Although Goodheart describes mounting a file system in Unix, Goodheart fails to cure the noted deficiencies of either Harish or Sullivan. Thus neither Harish, Sullivan, nor Goodheart, whether taken alone or in any combination teach or suggest each element of claim 1. For at least this reason, the rejection of claim 1 under 35 U.S.C. § 103(a) should be withdrawn.

Applicants further submit that a *prima face* case of obviousness has not been made by the Examiner. At best, the Examiner has used impermissible hindsight (Office Action, p. 3) to cobble together three references from three very different technology fields. Applicants submit to the Examiner that three requirements must be met to establish a *prima face* case of obviousness under 35 U.S.C. §103(a). First, the reference or references, taken alone or combined, must teach or suggest every element recited in the claims. (See M.P.E.P. §2143.03 (8th ed. 2001)). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist that the proposed modification will work for the intended purpose. Moreover,

each of the there requirements must be found in the prior art, and not be based on Applicants' disclosure. (See M.P.E.P. § 2143 (8th ed. 2001)).

Regarding teaching or suggesting every element, Harish, Sullivan, and Goodheart, whether taken alone or in any combination, fail to teach or suggest at least one of the elements of claim 1, as noted above.

Concerning the motivation to combine, Applicants submit Harish teaches away from Sullivan. Specifically, Harish merely describes operations associated writing data from ROM to RAM. (1:15). As a consequence, Harish's page table entries would never be remapped because page table entries for ROM (read-only memory) would always be set to "read-only," while page table entries for RAM would always be set to "read/write" (see, e.g., FIG. 4 and corresponding description). Harish thus teaches away from Sullivan's DBMS "update" scheme. Therefore, one of ordinary skill in the art would not be motivated to modify or combine the references to achieve the claimed combination. For at least this additional reason, a prima facie case of obviousness has not been established by the Examiner.

Lastly, concerning the expectation of success, even if such a modification to Harish, Sullivan, and Goodheart were possible, there is no suggestion or clue in either reference on how to make such a modification or whether the modification would be successful. Therefore, absent a *prima facie* showing by the Examiner, the rejection of claim 1 under 35 U.S.C. § 103(a) should be withdrawn for this additional reason.

Claims 2-5 depend, either directly or indirectly on claim 1 and include all the features recited in claim 1. For at least the reasons given above with respect to claim 1, claims 2-5 are allowable over Harish and Sullivan, whether taken alone or in any

combination. Therefore, the rejection of claims 2-5 under 35 U.S.C. § 103(a) should be withdrawn for this additional reason.

The Examiner rejected claims 6-13 under 35 U.S.C. § 103(a) as being unpatentable over Harish, Sullivan, and Goodheart and further in view of Mckusick. Applicants traverse this rejection.

Claim 6 recites a combination of elements including, *inter alia*, "a filesystem mounted in the RAM to manage filesystem data, the filesystem protecting the filesystem data from errant writes by modifying at least one page table entry associated with the filesystem data to a write-enable mode during a write operation on the filesystem data and to a read-enable mode after the write operation on the filesystem data, without using a disk cache for the filesystem data." For at least the reasons given above with respect to claim 1, neither Harish, Sullivan, nor Goodheart discloses or suggests "a file system ... modifying at least one page table entry associated with the filesystem data to a write-enable mode during a write operation on the filesystem data and to a read-enable mode after the write operation on the filesystem data, without using a disk cache for the filesystem data," as recited in claim 6. Although Mckusick discloses a file system for RAM, Mckusick fails to cure the noted deficiencies of Harish, Sullivan, and Goodheart. Therefore, claim 6 and claims 7-10, by reason of their dependency from claim 6, are patentable over Harish, Sullivan, Goodheart, and Mckusick, whether taken alone or in any combination. Therefore, the rejection of claims 6-10 under 35 U.S.C. § 103(a) should be withdrawn.

Claim 11 recites a combination of steps including, *inter alia*, "calling a protection function when accessing the filesystem data in the RAM by modifying page table

entries to the filesystem data by setting a read-write flag for the page table entries to write-enable mode, performing a write, and then setting the read/write flag for the page table entries to read-only mode." Claims 12 and 13 depend either directly or indirectly from claim 11. For at least the reasons given above with respect to claim 6, neither Harish, Sullivan, Goodheart, nor Mckusick discloses or suggests "calling a protection function when accessing the filesystem data in the RAM by modifying page table entries to the filesystem data by setting a read-write flag for the page table entries to write-enable mode, performing a write, and then setting the read/write flag for the page table entries to read-only mode." Therefore, claim 11 and claims 12 and 13, by reason of their dependency from claim 11, are patentable over Harish, Sullivan, Goodheart, and Mckusick, whether taken alone or in any combination. Therefore, the rejection of claims 11-13 under 35 U.S.C. § 103(a) should be withdrawn.

Applicants further submit that a *prima face* case of obviousness has not been made by the Examiner with respect to claims 6-13. As noted above, the Examiner has not made that case for Harish, Sullivan, Goodheart. When relying on Mckusick, Examiner uses impermissible hindsight to combine it with the other references. Because the Examiner has not made a *prima face* case of obviousness, the rejection of claims 6-13 under 35 U.S.C. § 103(a) should be withdrawn for this additional reason.

The Examiner rejected claims 14-21 under 35 U.S.C. § 103(a) as being unpatentable over Harish, Sullivan, Goodheart, and Mckusick and further in view of Temple. Applicants traverse this rejection.

Claim 14 recites a combination of steps including, *inter alia*, "remapping the RAM pages of the protected RAM filesystem for write-enable mode; performing a write

operation on the filesystem data; remapping the RAM pages of the protected RAM filesystem for read-only mode." For at least the reasons given above, neither Harish, Sullivan, Goodheart, nor Mckusick discloses or suggests these features. Although Temple discloses interrupts, Temple does not cure the above-noted deficiencies of each of these references. Therefore, claim 14 and claims 15-17, by reason of their dependency from claim 11, are allowable over Harish, Sullivan, Goodheart, Mckusick, and Temple, whether taken alone or in any combination. Therefore, the rejection of claims 14-17 under 35 U.S.C. § 103(a) should be withdrawn.

Claim 18, although of different scope, includes features similar to those of claim 14. Claims 19-21 depend, either directly or indirectly, from claim 18. For at least the reasons given above with respect to claim 14, claims 18-21 are allowable over Harish, Sullivan, Goodheart, Mckusick, and Temple, whether taken alone or in any combination. Therefore, the rejection of claims 18-21 under 35 U.S.C. § 103(a) should be withdrawn.

On page 6 of the Office Action, the Examiner appears to explain his reason for combining five different references. Applicants fail to see the relevance of Temple's "multiprocessor systems," which is an aspect of Temple not appearing in claims 18-21. At best, the Examiner appears to be relying on impermissible hindsight to combine Temple with four other references. Because the Examiner has not made a *prima face* case of obviousness, the rejection of claims 14-21 under 35 U.S.C. § 103(a) should be withdrawn for this additional reason.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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